

ADDO

ALL DAY DEVOPS

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CICD in the World of Serverless

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**Co-organiser of one of the largest Serverless
meetup groups - Serverless Architecture**

Meetup Group, Bangalore

Mentor at GirlScript Bangalore

 **@SrushithR**



Evolution of Serverless



Physical



Virtualisation



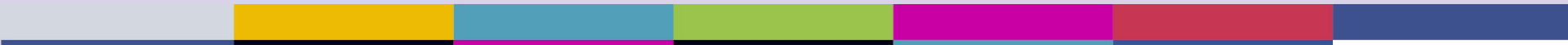
Cloud



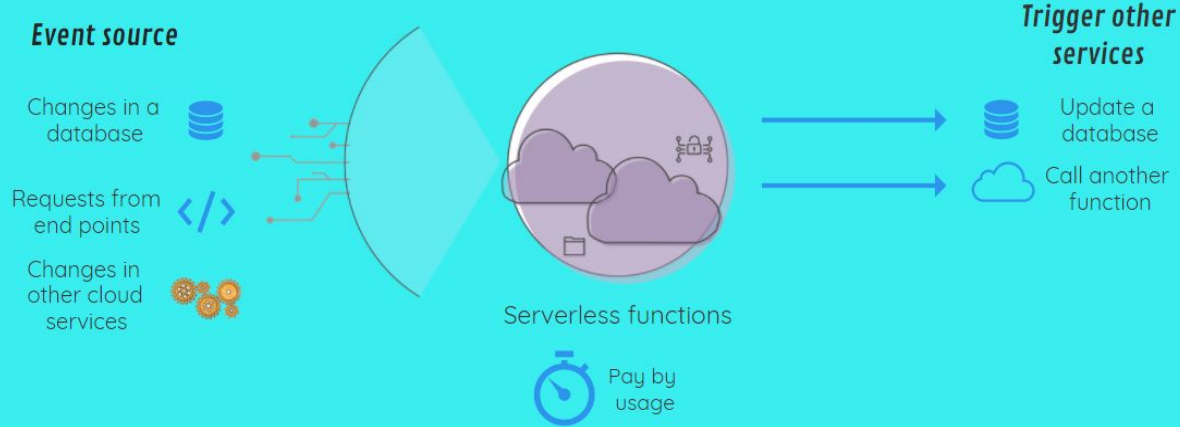
Containers



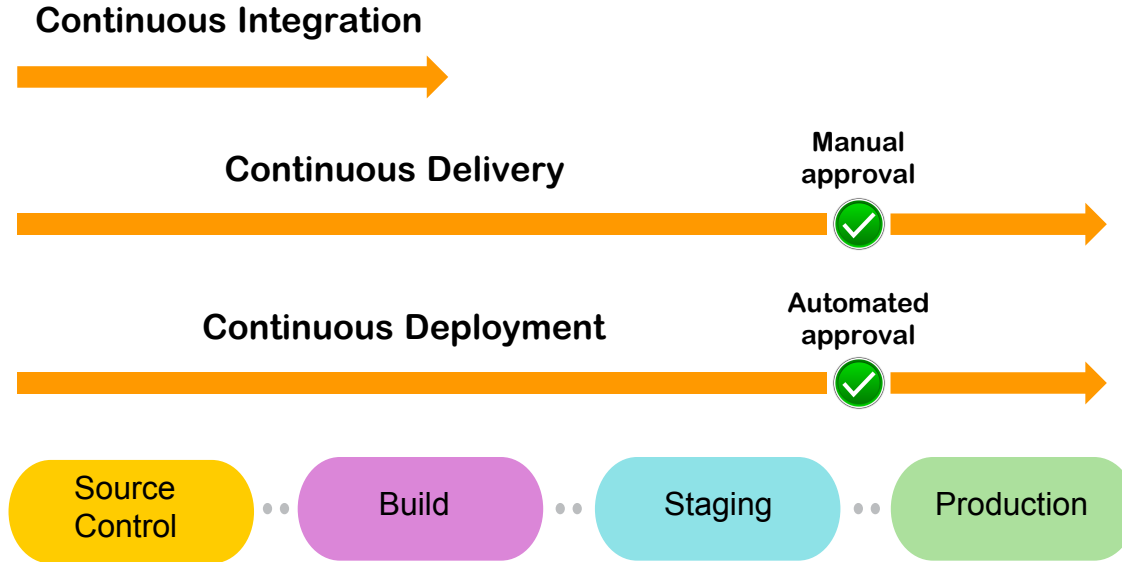
Serverless



How does Serverless work?



The Pipeline





What do we have in the market?



CHALICE



Claudia.js



SPARTA

pulumi



The stylish Node.js middleware engine for AWS Lambda



STACKERY

 AWS Amplify



HashiCorp
Terraform

CICD Options



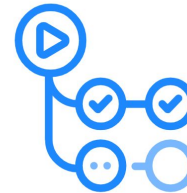
Jenkins



AWS CodePipeline




Azure Pipelines

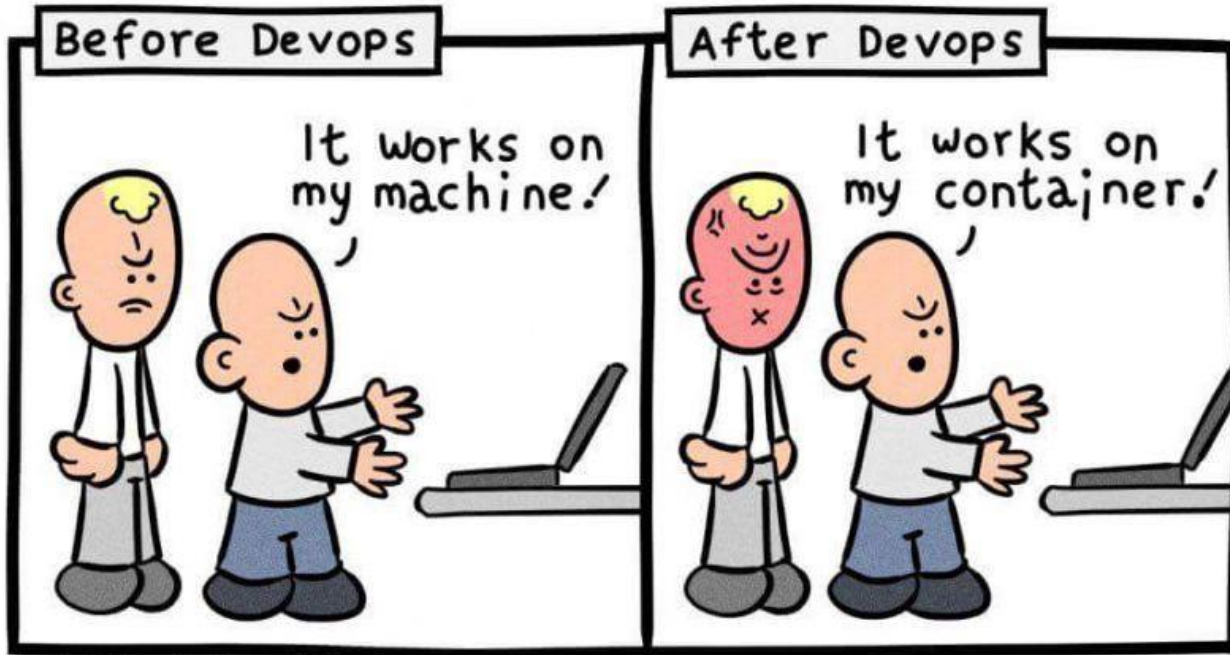


GitHub Actions



Better practices

- Infrastructure as Code (IaC) - everything is a part of source control!
- Individual accounts or regions at least per stage
- Increased number of unit and integration tests
- Automate everything - lesser manual intervention, lesser chances of messing things around 😊
- Same/similar environments across stages. No more “It works on my machine” 😞
- Secrets management - Parameter store, Secrets manager, SAM variables  @SrushithR



Daniel Stori (turnoff.us)



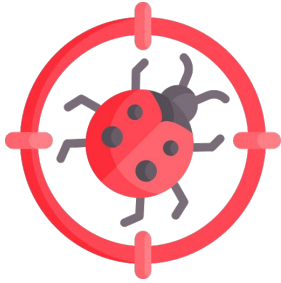
Testing - let's break things!



 @SrushithR

Image credits - https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.usgamer.net%2Farticles%2Fdestroying-video-games-even-the-bad-ones-itsnt-funny-heres-why&psig=AOvVaw2526WOiWb336XvusqXt89e&ust=1605280305199000&source=images&cd=vfe&ved=0CAIQjRxqFwoTCNjmr6il_ewCFQAAAAAdAAAAABAO





Local testing and debugging:
serverless local invoke
serverless offline

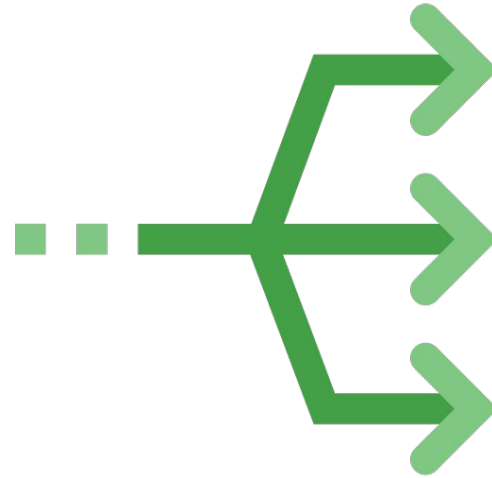


Integration tests



Mocking:
aws-sdk-mock
amplify mock api

Canary deployments





Resources:

MyLambdaFunction:

Type: AWS::Serverless::Function

Properties:

Handler: index.handler

Runtime: nodejs12.x

CodeUri: s3://bucket/code.zip

AutoPublishAlias: live

DeploymentPreference:

Type: Canary10Percent10Minutes

Alarms:

A list of alarms that you want to monitor

- !Ref AliasErrorMetricGreaterThanZeroAlarm

- !Ref LatestVersionErrorMetricGreaterThanZeroAlarm

Hooks:

Validation Lambda functions that are run before & after traffic shifting

PreTraffic: !Ref PreTrafficLambdaFunction

PostTraffic: !Ref PostTrafficLambdaFunction

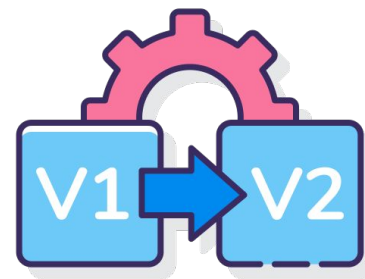


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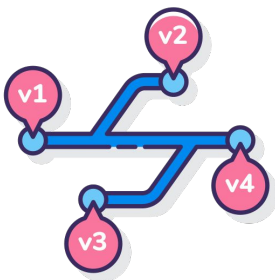


Deploying serverless applications gradually

- Automatically create aliases for the lambda functions
- Gradually shifts customer traffic to the new version
- Defines pre-traffic and post-traffic test functions
- Rolls back the deployment if CloudWatch alarms are triggered



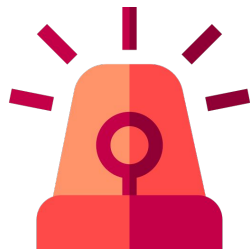
SAM + CodeDeploy - Features



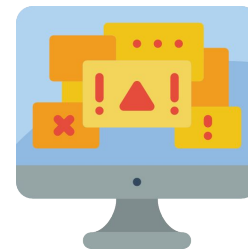
AutoPublishAlias -
publish new versions
and alias



Canary/linear
deployments



Alarms



Pre and post
traffic hooks for
sanity checks



Serverless == NoOps?!



Image credits -

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.slideshare.net%2Fdtzar%2Fnoops-no-operations&psig=AOvVaw3nsIEIgt2iNdskuvnMO4Yky&ust=1605294755240000&source=images&cd=vfe&ved=0CAIQjRxqFwoTCOiW8prb_ewCFQAAAAAdAAAAABAE



Serverless == NoOps?!



Image credits -
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At least the beginning of No
Ops...

#I♥SERVERLESS 3000

Thank You

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 **@SrushithR**

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